22. A method for determining optical characteristics of a turbid medium comprising:

measuring a spatially resolved reflectance of the turbid medium; and

extracting from the spatially resolved reflectance a phase function parameter of the turbid medium that depends on both the first and second moments of a polynomial expansion of the phase function.

23. The method according to claim 22, wherein the phase function parameter is given by $\gamma = (1-g_2)/(1-g_1)$, where γ is the phase function parameter, g_1 is the first moment of the polynomial expansion and g_2 is the second moment of the polynomial expansion.

24. The method according to claim 22, wherein measuring the spatially resolved reflectance comprises:

illuminating the turbid medium; and

detecting the light backscattered from the turbid medium by the illuminating.

25. The method according to claim 22, wherein the turbid medium comprises a biologic medium.

26. The method according to claim 22, further comprising:

smoothing the measured spatially resolved reflectance.

27. A signal processing device programmed to perform the method of claim 22.

28. A system for determining optical characteristics of a turbid medium comprising:

an illuminating source for illuminating the turbid medium;

a detector for detecting light backscattered from the illuminated turbid medium; and

a processing unit for determining a spatially resolved reflectance of the turbid medium based on the detected backscattered light and extracting from the spatially resolved reflectance a phase function parameter of the turbid medium that depends on both the first and second moments of a polynomial expansion of the phase function.

29. The system according to claim 28, wherein the illuminating source and the detector are embodied in a probe comprising optical fibers.

30. The system according to claim 28, wherein the illuminating source and the detector are embodied in a contact probe for use on the surface of the turbid medium.

31. The system according to claim 28, wherein the illuminating source and the detector are embodied in a non-contact probe for use at a distance from the surface of the turbid medium.

32. The system according to claim 28, wherein the detector detects backscattered light from the turbid medium at a plurality of illuminating source-detector distances.

33. The system according to claim 28, wherein the phase function parameter is given by $\gamma = (1-g_2)/(1-g_1)$, where γ is the phase function parameter, g_1 is the first moment of the polynomial expansion and g_2 is the second moment of the polynomial expansion.

34. The system according to claim 28, wherein the turbid medium comprises a biological medium.

35. A system for determining superficial optical characteristics of a turbid medium comprising:

an illuminating source for illuminating the turbid medium;

a detector for detecting light backscattered from the illuminated turbid medium in order to measure the spatially resolved reflectance of the turbid medium; and

a processing unit for extracting from the spatially resolved reflectance optical parameters of the turbid medium including the absorption coefficient, the reduced scattering coefficient and a phase function parameter, wherein the phase function parameter depends on both the first and second moments of a polynomial expansion of the phase function.

36. The system according to claim 35, wherein the illuminating source and the detector are embodied in a probe comprising optical fibers.

37. The system according to claim 35, wherein the processing unit extracts the phase function parameter by:

determining from the spatially resolved reflectance and the slope of the spatially resolved reflectance the absorption coefficient and the reduced scattering coefficient for each of a plurality of phase function parameter values;

generating simulations based on a photon propagation model with the determined absorption coefficients and reduced scattering coefficients; and

comparing the simulations and the measured spatially resolved reflectance at a plurality of distances to find a simulation that closely fits the measured spatially resolved reflectance.

38. The system according to claim 35, wherein the processing unit extracts the phase function parameter by:

comparing the measured spatially resolved reflectance with a plurality of simulations based on a photon propagation model; and

finding the simulation that minimizes the square of the differences between the measured spatially resolved reflectance and the simulated spatially resolved reflectances.

39. The system according to claim 35, wherein the processing unit extracts the phase function parameter by:

determining the slopes of the square root of the spatially resolved reflectance for at least two different distances; and

determining the reduced scattering coefficient and the phase function parameter by a polynomial interpolation of data obtained from simulations based on a photon propagation model.

40. The system according to claim 35, wherein the phase function parameter is given by $\gamma = (1-g_2)/(1-g_1)$, where γ is the phase function parameter, g_1 is the first moment of the polynomial expansion and g_2 is the second moment of the polynomial expansion.

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41. The system according to claim 35, wherein the turbid medium comprises a biological medium.--

REMARKS

Reconsideration and allowance of the subject patent application are respectfully requested.

The specification has been amended to correct informalities and to otherwise improve the form thereof. Entry of these amendments to the specification is respectfully requested.

An Information Disclosure Statement is submitted concurrently herewith. Consideration of the cited information is respectfully requested.

Applicants acknowledge with appreciation the indication that claims 8-11 contain allowable subject matter.